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REMARKS

This Amendment is responsive to the Final Office Action dated June 24, 2004. All rejections and objections of the Examiner are respectfully traversed. Reconsideration and further examination is respectfully requested.

At paragraphs 1-44 of the Office Action, the Examiner rejected claims 1-57 under 35 U.S.C. 102(b) as being anticipated by Tony Ballardie and Jon Crowcroft in "Multicast-Specific Security Threats and Counter-Measures" ("Ballardie").   The Examiner asserts that certain features of the present independent claims are not literally present in the teachings of Ballardie, but that they are "inherent" in Ballardie, and that they must necessarily be present in the system described by Ballardie. Applicants respectfully traverse this rejection.

As noted in the previous response, Ballardie discusses security risks in a communication networks that have multicasting, previous approaches to multicast security, and a proposed authorization infrastructure using authentication servers that support a technique for multicast group access control.

Nowhere in Ballardie is there disclosed or suggested any multicast communication system having multiple subscriber locations, each subscriber location having a single access device through which a plurality of subscriber devices access multicast information sent by a multicast distribution device, and in which:

> . . . *each said access device acts to join and leave at least one multicast group on behalf of the subscriber devices at its respective subscriber location, and wherein each said access device processes a join request from one of said subscriber devices by determining whether said access device is already joined to a multicast group indicated by said join request, and, in the event that said access device is not already joined to*

said multicast group indicated by said join request, sending a join request to said multicast distribution device. (emphasis added)

as in the present independent claims 1, 4, 15, 28 and 42. In contrast, Ballardie teaches that if a client system is authenticated through by the authentication server of Ballardie, the authentication server produces an encrypted authorization stamp that is sent to the requesting client system. Ballardie explicitly states as follows under section 7.3 on page 8:

> If *a client* is successful in obtaining an authorization stamp for a group *G*, or if the group is unrestricted, then *it* may proceed to join group *G*. (emphasis added)

Thus Ballardie expressly teaches that client systems themselves are responsible for joining multicast groups. Thus, by describing a system in which client systems directly issue their own join messages, Ballardie teaches away from any system, such as that of the present independent claims, in which an access device operates to join a multicast group on behalf of multiple subscriber devices in a subscriber location for which the access device is the sole multicast receiver.

With regard to the standard for determining inherency, Applicants note that for a claim to be anticipated under 35 U.S.C. 102, all of the elements and limitations of the claims must be expressly or inherently described in a single prior art reference. In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 USPQ2d 1057, 1064 (Fed. Cir. 1988). The single reference must describe and enable the claimed invention, including all claim limitations, with sufficient clarity and detail to establish that the subject matter already existed in the prior art and that its existence was recognized by persons of ordinary skill in the field of the invention. Crown Operations

International, Ltd. v. Soluna Inc., 289 F.3d 1367, 1375, 62 USPQ2d 1917, 1921 (Fed. Cir. 2002);

In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990) ("the reference must

describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in

the field of the invention in possession of it"). The anticipating reference "must disclose every

element of the challenged claim and enable one skilled in the art to make the anticipating subject

matter." PPG Industries, Inc. v. Guardian Industries Corp., 75 F.3d 1558, 1566, 37 USPQ2d

1618, 1624 (Fed. Cir. 1996).

When anticipation is based on inherency of limitations not expressly disclosed in the

assertedly anticipating reference, it must be shown that the undisclosed information was known

to be present in the subject matter of the reference. Continental Can Co. USA, Inc. v. Monsanto

Co., 948 F.2d 1264, 1269, 20 USPQ2d 1746, 1749-50 (Fed. Cir. 1991). An inherent limitation is

one that is necessarily present; invalidation based on inherency is not established by

"probabilities or possibilities." Scaltech, Inc. v. Retec/Tetra, LLC., 178 F.3d 1378, 1384, 51

USPQ2d 1055, 1059 (Fed. Cir. 1999).

The Examiner asserts that the multicast distribution devices, access devices, and

subscriber devices of the present independent claims are inherent in multicast networks.

Specifically, the Examiner indicates that the claimed access devices are anticipated by "proxy

servers" that are necessarily part of, and therefore inherent to Ballardie. In response, Applicants

note that Ballardie includes no discussion relating to possible uses of proxy servers of any kind.

To the contrary, the Authorization Servers of Ballardie provide the specific service of processing

user-requests that must be performed *prior to* an end-system joining a group, where such

processing is based on indications of which end systems are authorized to become group

members. Accordingly, Applicants respectfully submit that there is nothing within the four

corners of <u>Ballardie</u> that suggests any need for, or even implicitly necessitates a proxy server of any kind.   Moreover, in reviewing commonly available definitions of proxy servers, multi-cast networks and the like (copies enclosed herewith), Applicants find nothing indicative of any inherent use of proxy servers in multi-cast networks.   Finally, the features of the present independent claims set forth above must be given patentable weight with respect to the cited references.   Applicants respectfully urge that the evidence in the prior art does not support the Examiner's assertion of inherent teachings regarding the features of the present independent claims.   Since facts asserted to be inherent in the prior art must be shown by evidence from the prior art, Applicants further respectfully urge that these rejections should be withdrawn.

For the reasons stated above, Applicants respectfully urge that <u>Ballardie</u> does not disclose or suggest all the features of the present independent claims 1, 4, 15, 28 and 42.   Accordingly, <u>Ballardie</u> does not anticipate, either literally or inherently, claims 1, 4, 15, 28 and 45 under 35 U.S.C. 102.   As to the remaining claims, they each depend from either claim 1, 4, 15, 28 or 45, and are believed to be patentable over <u>Ballardie</u> for at least the same reasons.   Reconsideration of all pending claims is respectfully requested.

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For these reasons, and in view of the above amendments, the Examiner's rejections are respectfully believed to be overcome, and it is respectfully requested that they be withdrawn. This application is now considered to be in condition for allowance and such action is earnestly solicited.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone David A. Dagg, Applicants' Attorney at 617-630-1131 so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

November 16 2004
Date

David A. Dagg, Reg. No. 37,809
Attorney/Agent for Applicant(s)
Steubing McGuinness & Manaras LLP
125 Nagog Park Drive
Acton, MA 01720
(978) 264-6664

Docket No. 120-348

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Also called a "proxy," it is a computer system or router that breaks the connection
between sender and receiver, closing a straight path between the internal LAN and
the internet. Very often the proxy server is a dual-homed host with two network
interfaces. Functioning as a relay between the client and server, proxy servers are
used to help prevent a cracker from obtaining internal addresses and attacking the
private network. They are one of several tools that can be used to build a firewall.

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The word proxy means "to act on behalf of another," and a proxy server acts on
behalf of the client and of the server. All requests from the clients to the Internet go
to the proxy server first. The proxy evaluates them and passes valid ones on to the
Internet. Likewise, responses from the Internet or initial requests coming from the
Internet go the proxy and are evaluated, before being passed on to the clients.
Proxies generally employ network address translation (NAT), which presents one
organization-wide IP address to the outside world. Proxies may also cache Web
pages, so that the next client request for that same page can be obtained locally,
which is much faster.

Proxy servers are available for common Internet services; for example, an HTTP
proxy is used for Web access; an FTP proxy is used for file transfers. Such proxies
are called "application-level" proxies or "application-level gateways," because they
are dedicated to a particular application and protocol and are aware of the content
of the packets being sent. A generic proxy, called a "circuit-level" proxy, supports
multiple applications. For example, SOCKS is a generic IP-based proxy server that
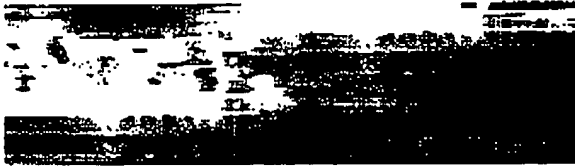supports TCP and UDP applications (see SOCKS).

The SMTP mail standard is an example of a proxy server without being called one,
because it uses a store-and-forward server. E-mail messages are not sent directly
from client to client without going through a mail server. See LAN, firewall, proxy
and cache.

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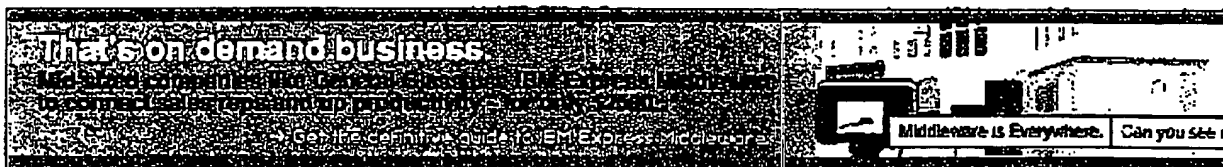
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multicast

(1) In communications networks, to transmit a message to multiple recipients at
the same time. Multicast is a one-to-many transmission similar to broadcasting,
except that multicasting means sending to specific groups, whereas broadcasting
implies sending to everybody. When sending large volumes of data, multicast
saves considerable bandwidth, because the bulk of the data is transmitted once
from its source through major backbones and are multiplied, or distributed out, at
switching points closer to the end users. In a unicast system, the data is replicated
entirely to each recipient. See IP multicast, IGMP and SRM.

(2) In digital television broadcasting, to send multiple channels of programming
over the allotted bandwidth for digital transmission rather than one high-definition
TV (HDTV) signal.

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Transmitting data to a group of selected users at the same time on a TCP/IP
network (internal, intranet or Internet). It is used for streaming audio and video
over the network, but is also good for downloading a file to multiple users. IP
multicast saves network bandwidth, because the files are transmitted as one data
stream over the backbone and only split apart to the target stations by the router at
the end of the path. See DVMRP, MOSPF and PIM.

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Entries after IP multicast

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